What is claimed is:

1. A semiconductor optoelectronic device comprising:

an active layer;

an upper waveguide layer provided on the active layer and a lower waveguide layer provided under the active layer;

an upper cladding layer provided on the upper waveguide layer and a lower cladding layer provided under the lower waveguide layer;

a substrate supporting a deposited structure of the lower cladding layer, the lower waveguide layer, the active layer, the upper waveguide layer, and the upper cladding layer; and

upper and lower optical confinement layers provided between the active layer and the upper waveguide layer and between the active layer and the lower waveguide layer, respectively, and having an energy gap that is smaller than those of the upper and lower waveguide layers but greater than that of the active layer.

2. The semiconductor optoelectronic device of claim 1, wherein an electron blocking layer is interposed between the upper waveguide layer and the upper optical confinement layer.

3. The semiconductor optoelectronic device of claim 1, wherein the substrate is formed of Si, sapphire, SiC, or GaN.

4. The semiconductor optoelectronic device of claim 1, wherein the active layer, the upper and lower waveguide layers, the upper and lower cladding layers, and the upper and lower optical confinement layers are formed of a nitride-based material.

5. The semiconductor optoelectronic device of claim 2, wherein the active layer, the upper and lower waveguide layers, the upper and lower cladding layers, and the upper and lower optical confinement layers are formed of a nitride-based material.

6. The semiconductor optoelectronic device of claim 3, wherein the active layer, the upper and lower waveguide layers, the upper and lower cladding layers,

and the upper and lower optical confinement layers are formed of a nitride-based material.

7. The semiconductor optoelectronic device of claim 1, wherein the upper and lower waveguide layers are formed of p-GaN and n-GaN, respectively, the upper and lower cladding layers are formed of p-AlGaN/p-GaN and n-AlGaN/n-GaN, respectively, or p-AlGaN and n-AlGaN, respectively, and the active layer is formed of AlInGaN ($Al_vIn_xGa_{1-x-v}N/Al_wIn_yGa_{1-y-w}N$, $0 \leq v, w, x, y \leq 1$, $0 \leq x + y, y + w \leq 1$, $y \leq x$, $v \leq w$).

8. The semiconductor optoelectronic device of claim 2, wherein the upper and lower waveguide layers are formed of p-GaN and n-GaN, respectively, the upper and lower cladding layers are formed of p-AlGaN/p-GaN and n-AlGaN/n-GaN, respectively, or p-AlGaN and n-AlGaN, respectively, and the active layer is formed of AlInGaN ($Al_vIn_xGa_{1-x-v}N/Al_wIn_yGa_{1-y-w}N$, $0 \leq v, w, x, y \leq 1$, $0 \leq x + y, y + w \leq 1$, $y \leq x$, $v \leq w$).

9. The semiconductor optoelectronic device of claim 3, wherein the upper and lower waveguide layers are formed of p-GaN and n-GaN, respectively, the upper and lower cladding layers are formed of p-AlGaN/p-GaN and n-AlGaN/n-GaN, respectively, or p-AlGaN and n-AlGaN, respectively, and the active layer is formed of AlInGaN ($Al_vIn_xGa_{1-x-v}N/Al_wIn_yGa_{1-y-w}N$, $0 \leq v, w, x, y \leq 1$, $0 \leq x + y, y + w \leq 1$, $y \leq x$, $v \leq w$).

10. The semiconductor optoelectronic device of claim 5, wherein an electron blocking layer formed of p-type AlGaN is interposed between the upper waveguide layer and the upper optical confinement layer.

11. The semiconductor optoelectronic device of claim 6, wherein an electron blocking layer formed of p-type AlGaN is interposed between the upper waveguide layer and the upper optical confinement layer.

12. The semiconductor optoelectronic device of claim 7, wherein an electron blocking layer formed of p-type AlGaN is interposed between the upper waveguide layer and the upper optical confinement layer.

13. The semiconductor optoelectronic device of claim 7, wherein the optical confinement layer is formed of $Al_xIn_yGa_{1-x-y}N$ ($0 \leq x, y \leq 1, 0 \leq x + y \leq 1$).

14. The semiconductor optoelectronic device of claim 8, wherein the optical confinement layer is formed of $Al_xIn_yGa_{1-x-y}N$ ($0 \leq x, y \leq 1, 0 \leq x + y \leq 1$).

15. The semiconductor optoelectronic device of claim 9, wherein the optical confinement layer is formed of $Al_xIn_yGa_{1-x-y}N$ ($0 \leq x, y \leq 1, 0 \leq x + y \leq 1$).

16. The semiconductor optoelectronic device of claim 10, wherein the optical confinement layer is formed of $Al_xIn_yGa_{1-x-y}N$ ($0 \leq x, y \leq 1, 0 \leq x + y \leq 1$).

17. The semiconductor optoelectronic device of claim 11, wherein the optical confinement layer is formed of $Al_xIn_yGa_{1-x-y}N$ ($0 \leq x, y \leq 1, 0 \leq x + y \leq 1$).

18. The semiconductor optoelectronic device of claim 12, wherein the optical confinement layer is formed of $Al_xIn_yGa_{1-x-y}N$ ($0 \leq x, y \leq 1, 0 \leq x + y \leq 1$).

19. The semiconductor optoelectronic device of claim 13, wherein the optical confinement layer is doped with Si or Mg.

20. The semiconductor optoelectronic device of claim 14, wherein the optical confinement layer is doped with Si or Mg.

21. The semiconductor optoelectronic device of claim 15, wherein the optical confinement layer is doped with Si or Mg.

22. The semiconductor optoelectronic device of claim 13, wherein the optical confinement layer has a thickness of more than 100 Å.

23. The semiconductor optoelectronic device of claim 14, wherein the optical confinement layer has a thickness of more than 100 Å.

24. The semiconductor optoelectronic device of claim 15, wherein the optical confinement layer has a thickness of more than 100 Å.